AN EFFICIENT CREDIT CARD FRAUD DETECTION TECHNIQUE USING GENETIC ALGORITHM

Shruti Murdande [1] | Pradip Sonavane [1]

[1] Department of Computer Engineering, Savitribai Phule Pune University, Trinity Academy of Engineering ,Pune .

ABSTRACT

Due to increasing use of internet for the past several years there has been seen a drastic increase in electronic business. Without any face to face interaction electronic-business is carried out. Many Electronic Payment system or modes are developed such as credit cards, debit card. This has resulted in Electronic-Frauds. And day-by-day electronic frauds are increasing rapidly, which causes capital loss to organizations as well as customers who uses credit cards and debit cards. This gave an urge to develop credit card fraud detection system. In this paper our goal is to reduce fraud effectively hence genetic algorithm is preferred. Based on number of iteration of user behaviour Genetic algorithm classifies the transaction as either Fraud or either authorized.

KEYWORDS: Electronic-Business, Electronic-Fraud, Capital loss, User behavior.

I. INTRODUCTION

Credit card fraud is a widely increasing term for fraud committed using and involving a payment card, such as a debit card, or credit card as a fraudulent source of funds in a transaction. The purpose can be to obtain goods without paying, or to gain illigitimate funds from an account..In recent years, the proves more powerful data mining concerns people with credit card fraud detection model based on data mining. Since our problem is ressembled as a classification problem, data mining algorithms are not directly applicable[1]. So an alternate approach is made by using general purpose meta heuristic approaches like genetic algorithms. This project is to propose a credit card fraud detection system using genetic algorithm. Genetic algorithms are generative algorithms which aims at gaining better solutions as time progresses. When a card is copied or stolen or lost and captured by fraudsters it is usually used until its available limit is depleted. Thus, rather than the number of correctly classified transactions, a solution which minimizes the total available limit on cards subject to fraud is more prominent. It aims in minimizing the false alerts using genetic algorithm where a set of interval valued parameters are optimized.

II. GENETIC ALGORITHM

The Traditional detection method generally depends on database system and the education of customers, which usually are delayed, less precise and not in-time[2]. After that methods based on discriminate analysis and regression analysis are mostly used which can detect fraud or deceit by credit rate for cardholders and credit card transaction .

To evolve a credit card fraud detection system using genetic algorithm. The number of false alert is being minimized by using genetic algorithm. Instead of increasing the numbers of correctly classified transactions we defined an objective function where the misclassification costs are not consistent and thus, correct classification of some transactions are more vital than correctly classifying the others. The algorithm starts with multi-population of randomly generated chromosomes. These chromosomes sustains the operations of selection, cross-over and mutation. Crossover combines the information or data from two parent chromosomes to generate new individuals, utilizing the best of the current generation, while mutation or randomly changing some of the framework allows studying into other regions of the solution space. Natural selection via a problem specific cost function ensures that only the best fit chromosomes remain in the population to mate and produce the next generation. Upon iteration, the genetic algorithm meets to a global solution.

In case of online payment customer does following steps;
Step 1: Sign-in- i.e. the customer has to register and enter personal details before proceeding to transaction for online shopping.

Step 2: Then the customer has to browse the product and select the service.

Step 3: Enter the credit card data and then request is received by system.

Step 4: System applies mining and if user is authenticated then he request is proceeded.

Step 5: Else Generate the OTP, then image of OTP is created, and grayscale, threshold image is created which is required for image processing. Shares are generated from which Share 1 is sent to user through network and share 2 is generated through mail.

**Step 6:** After receiving shares the share 1 and share 2 are combined i.e. share 1+share = OTP.

Share 7: User enters the OTP, if it is correct i.e. matches with the OTP sent by the system then the transaction is proceeded. Else the account is locked.

III. RESULT

The proposed system conquer the mentioned issue in an effective way. Using genetic algorithm the fraud is detected and the false alert is reduced and it generates an efficient result. The fraud is detected relevant to the customers behaviour. A new classification problem which has inconsistent misclassification cost is introduced.

Here the genetic algorithms is used where a set of interval valued parameters are optimized.

IV. SYSTEM IMPLEMENTATION PLAN
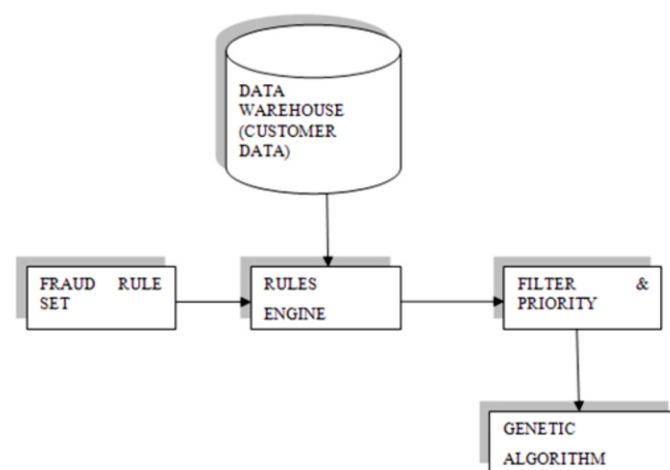
Figure 1: System Implementation Plan.

The above architecture narrates the work structure of the system. The customer data or information in the data warehouse is subjected to the rules engine which contains the fraud rule set. The filter and priority module sets the priority for the data and information and then sends it to the genetic algorithm which accomplish its functions and generates the output.

V. CONCLUSION

This method proves precise in reducing fraudulent transaction and decreasing the number of false alert. Genetic algorithm is a genuine one in this literature in terms of application domain. If this algorithm is applied into bank credit card fraud detection system, the possibility of fraud transactions can be predicted soon after credit card transactions. And a series of anti-fraud strategies can be acquired to prevent banks from great losses and reduce risks.

The goal of the study was taken differently than the typical classification problems in that we had a inconsistent misclassification cost. As the standard data mining algorithms does not fit well with this situation we decided to use multi population genetic algorithm to gain an efficient parameter.

REFRENCES

1. S.Benson Edwin Raj, A. Annie Portia, Analysis on Credit Card Fraud Detection Methods, IEEE International Conference on Computer, Communication and Electrical Technology, IEEE March 2011.

2. Rinky D. Patel, Dheeraj Kumar Singh," Credit Card Fraud Detection & Prevention of Fraud Using Genetic Algorithm ", International Journal of Soft Computing and Engineering ISSN: 2231-2307, Volume-2, Issue-6, January 2013 .